

Baton Rouge Community College

Academic Affairs Master Syllabus

Date Approved or Revised: July 25, 2008

Course Name: Introductory Astronomy: The Solar System
Course Number: ASTR 101

Lecture Hrs. 3

Lab Hrs. 0

Credit Hrs. 3

Course Description: Presents the fundamental principles of the solar system. As with other physical science courses, this course will have the double goal of informing the student on factual knowledge on the universe that surrounds us and, at the same time, showing the logic and practice of science and how this type of thinking is important in daily life.

Prerequisites: MATH 101 or MATH 110

Co-requisites: None

Suggested Enrollment Cap: 30

Learning Outcomes: Upon successful completion of this course, the student will be able to:

- Describe the scientific method;
- Determine difference between a hypothesis and a theory;
- Identify what bodies the solar system comprises;
- Relate the basic process that powers the Sun and other stars;
- Discuss the basics of how stars are born, grow old, and die;
- Define nebulae, supernovae, pulsars, X-ray bursters, and black holes and indicate where they fit in the life cycle of a star;
- Recognize what a galaxy is and what astronomers learn by studying galaxies;
- Recognize how astronomers use angles to measure the size and position of objects in the sky;
- Use powers-of-ten notation;
- Recognize the units used to measure astronomical distances;
- Use the basic units of the SI system; and
- Appreciate how the study of astronomy has led to practical applications here on Earth as well as expanding our knowledge of the universe and its origins.

General Education Learning Outcomes: This course supports the development of competency in the following areas. Students will:

- Think critically, collect evidence (statistics, examples, testimony) and make decisions based on the evidence, comprehend and analyze texts, and solve problems using methods of critical and scientific inquiry; and

- Relate the general concepts of science to the world and demonstrate an understanding of the impact of these processes and their concepts on human lives.

Assessment Measures: Assessment of all learning outcomes will be measured using the following methods:

- Department-designed exams will collectively assess a portion of the learning outcomes and will be administered during the semester as listed in a department-generated schedule.
- A department-designed mid-term exam will cover a portion of the learning outcomes; a department-designed final exam will cover another portion of the learning outcomes and will be given at the end of the semester.
- Individual instructor-designed or collaborative instructor-designed assignments will assess a portion of the learning outcomes and will be given as a portion of the total grade. Assignments will include oral and written assignments, projects, homework, and quizzes; all assignments will be graded using an instructor-designed rubric.

Information to be included on the Instructors' Course Syllabi:

- **Disability Statement:** Baton Rouge Community College seeks to meet the needs of its students in many ways. See the Office of Disability Services to receive suggestions for disability statements that should be included in each syllabus.
- **Grading:** The College grading policy should be included in the course syllabus. Any special practices should also go here. This should include the instructor's and/or the department's policy for make-up work. For example in a speech course, "Speeches not given on due date will receive no grade higher than a sixty" or "Make-up work will not be accepted after the last day of class."
- **Attendance Policy:** Include the overall attendance policy of the college. Instructors may want to add additional information in individual syllabi to meet the needs of their courses.
- **General Policies:** Instructors' policy on the use of things such as beepers and cell phones and/or hand held programmable calculators should be covered in this section.
- **Cheating and Plagiarism:** This must be included in all syllabi and should include the penalties for incidents in a given class. Students should have a clear idea of what constitutes cheating in a given course.
- **Safety Concerns:** In some programs this may be a major issue. For example, "No student will be allowed in the safety lab without safety glasses." General statements such as, "Items that may be harmful to one's self or others should not be brought to class."
- **Library/ Learning Resources:** Since the development of the total person is part of our mission, assignments in the library and/or the Learning Resources Center should be included to assist students in enhancing skills and in using resources. Students should be encouraged to use the library for reading enjoyment as part of lifelong learning.

Expanded Course Outline:

- I. Scientific Method and Measurement in Astronomy
 - A. Ancient Fascination towards the Sky (Myth, Legends, Ceremonies, etc.)
 - B. Versus Scientific Curiosity and Discovery.
- II. The Sky
 - A. Constellations: Big and Little Dipper, Orion, Andromeda...
 - B. The Appearance of the Sky: Colors and Motion
 - C. Size and Shape of Earth
 - D. Seasons
- III. The Moon
 - A. Lunar Phases
 - B. Eclipses
 - C. Tides
- IV. The Solar System
 - A. Copernicus versus Tolomeus
 - B. Kepler's Laws and Newton's Law of Motion
 - C. Universal Law of Gravitation
 - D. Light (How we know the Universe)
 - E. Telescopes
 - F. Comparative Planetology
- V. Rocky Planets
 - A. Earth as a Planet
 - B. The Moon's Composition (it is not made of cheese...)
 - C. Mercury and Venus
 - D. Mars Now and in the Past (microlife on Mars?)
- VI. Outer Bodies
 - A. Gas Giant Planets
 - B. Rings around Planets
 - C. Moons around Planets
 - D. Pluto: Planet or Large Kuiper Belt Object?
 - E. Comets
- VII. Extraterrestrial Life
 - A. Formation of the Solar System
 - B. Recent Discoveries about Extra Solar Planets
 - C. Exobiology
 - D. Alien Life
- VIII. The rest of the Universe
 - A. Our Sun
 - B. Stars

- C. Galaxies
- D. Hubble Law
- E. Age and Fate of the Universe
- F. Great new Cosmology Discoveries